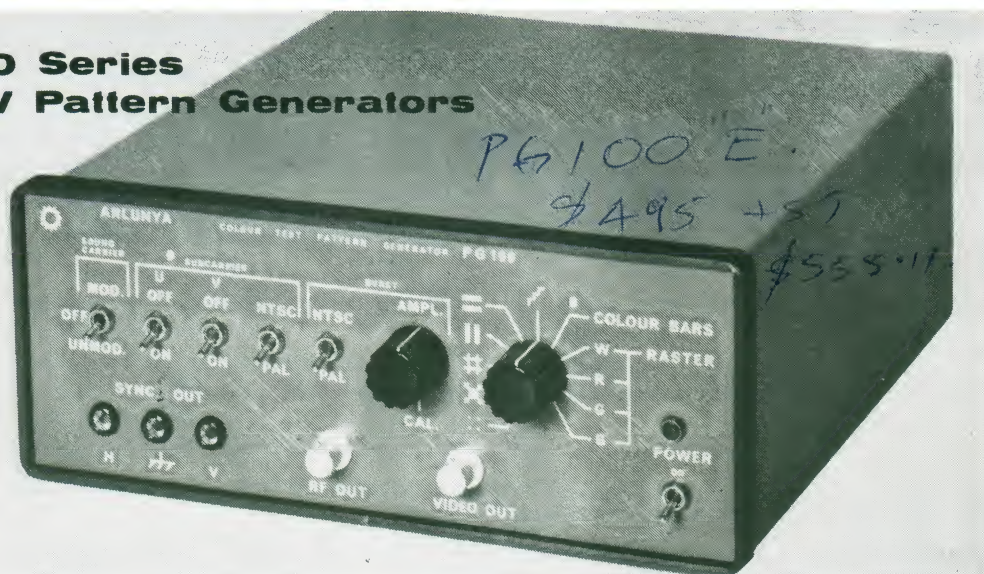






# Arlunya Instrumentation For Television

## Arlunya PG100 Series PAL Colour TV Pattern Generators



**STOP PRESS**  
PG. 100D NOW  
REPLACED BY PG. 100E  
with  
CIRCLE  
and  
SPOT

The PG100 series are versatile solid state test pattern generators designed specifically for alignment and fault-finding in PAL colour or monochrome TV receivers. As they meet the relevant CCIR and ABCB colour standards they are ideal for factory production alignment and test, service workshop or customer house call service.

Calibrated/Continuous control of burst amplitude is provided as well as the ability to select between PAL and NTSC encoding of the colour sub carrier. The U and V components of the chrominance signal may be switched off independently.

Together with the basic patterns these features allow fast receiver fault diagnosis and alignment including many "on screen" tests and adjustments.

### General Features

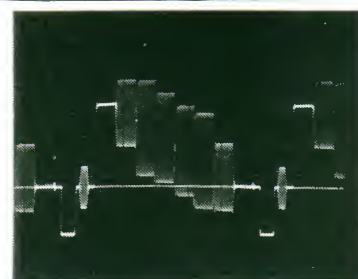
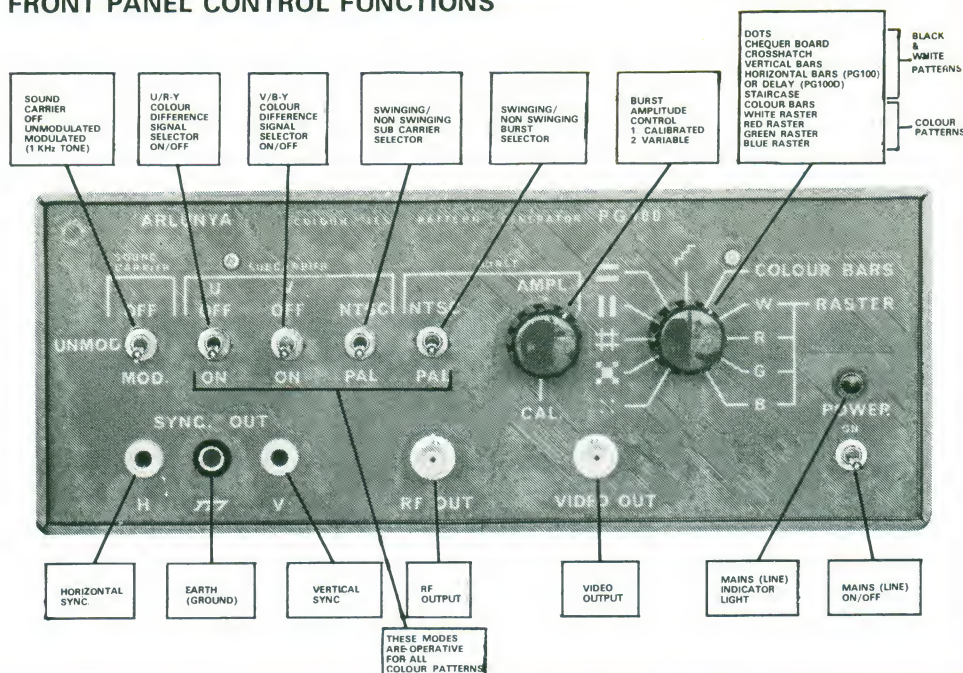
- **RELIABLE** — Through rugged construction and maximum use of TTL integrated circuits.
- **STABLE** — Careful design and quality components give stable operation over 0-50 °C.
- **COMPACT** — No trouble to carry around or stow.
- **DURABLE** — Tough external finishes — collett fixing knobs — quality components.
- **ELEGANT** — Pleasantly blending colours, trim and lettering.
- **CHOICE OF MODELS** — Basic PG100 or PG100D for "on screen" PAL delay line adjustment. Export versions available for different PAL systems, e.g. for use in the U.K.

### Technical Features

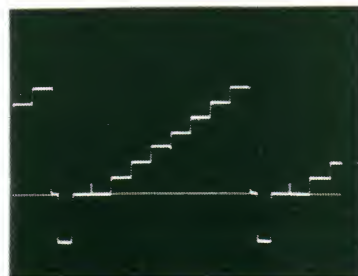
- CCIR standard 75% saturated 8 band colour bar for "on screen" fault-finding and alignment of chroma decoder, saturation/contrast, colour killer circuits etc.
- Switchable burst — swinging/non-swinging plus calibrated or continuously variable burst amplitude control allows fast "on screen" fault-finding and alignment of colour killer, chrominance and other circuits.
- R-Y and B-Y — flexible and independent muting of the U and V chrominance signal plus switchable PAL/NTSC encoding permit "on screen" fault-finding of chrominance, synchronous colour detector, PAL decoder circuits etc. This feature is also ideal for teaching and demonstration purposes.
- Separate primary red, green and blue raster for rapid purity adjustment without needing to switch off guns in receiver.
- White raster for white balance and purity adjustments.
- Accurately centred dots and crosshatch patterns for checking static and dynamic convergence, scan amplitudes and linearity, transient response etc.
- Accurately centred chequerboard pattern for raster geometry adjustment.
- 8 step staircase for grey scale tracking and non-linear distortion checks etc.
- Vertical bars — for detecting ringing and for trouble shooting where an oscilloscope is needed.
- Horizontal bars (PG100 Basic Model only) — useful for LF response and sync separator circuit testing.
- Delay (PG100D only) — special 4 bar pattern for fast "on screen" check and alignment of PAL delay line.
- Horizontal and vertical trigger signals for oscilloscope synchronisation etc.
- 1 Vpp 75 ohm composite video output as well as 75 ohm (unbalanced) RF output covering 35 MHz to 210 MHz i.e. IF and all TV channels.
- Modulated and unmodulated sound carrier for testing of audio circuitry; the sound carrier can also be switched off.
- 625 line, 50 fields/sec. 2:1 interlace video standard.



## FRONT PANEL CONTROL FUNCTIONS



OSCILLOSCOPE PHOTOGRAPH OF VIDEO SIGNAL FOR 8 COLOUR BAR PATTERN



OSCILLOSCOPE PHOTOGRAPH OF VIDEO SIGNAL FOR 8 LEVEL STAIRCASE PATTERN

## Specifications PG100 PG100D

- Dots: Located at the intersections of horizontal and vertical lines of the crosshatch pattern. 6 x 8 squares accurately centred.
- Chequerboard: 12 horizontal lines of 1 line (per field) width. 16 vertical lines of 250ns width.
- Crosshatch: 6 black and white bars with transitions coincident with those of the crosshatch pattern (rise time = 200ns).
- Vertical bars: A single broad horizontal bar at lower centre of screen (duration: 250 lines).
- Horizontal bar (PG100): OR
- Delay (P100D): A special four vertical bar pattern appears instead of horizontal bars on the PG100D Model. The front panel remains the same (as PG100) but when this switch position is selected the four bar pattern should appear on the receiver screen with the first two bars yellowish green and the remaining two grey or bluish grey. The receiver is correctly adjusted when the two yellow greenish bars are of equal hue and the two grey bars are of equal density.
- Staircase: 8 vertical bar grey scale with identical steps in ascending order with white at 100% luminance.
- Colour bar: 8 vertical colour bars: white, yellow, cyan, green, magenta, red, blue and black at 75% picture contrast.
- White raster: 75% picture contrast.
- Red raster: 75% picture contrast.
- Green raster: 75% picture contrast.
- Blue raster: 75% picture contrast.

### VIDEO STANDARD:

- 625 lines, 25 Hz, 2:1 interlace (no equalising pulses, no serration pulses during field sync.).
- Line frequency 15.625 kHz  $\pm$  0.1%.
- Frame frequency 25 Hz (= 15.625  $\div$  625).
- Line blanking period 12.5  $\mu$ s.
- Field blanking period 25 lines + 12.5  $\mu$ s.
- Line sync. duration 4.7  $\mu$ s.
- Field sync. duration 2.5 lines.
- Front porch duration 1.8  $\mu$ s.
- Set-up between blanking and black levels—zero.
- Picture to sync. ratio 100:40.

### OUTPUTS:

- Video — 1Vpp (75  $\Omega$ ), BNC connector.
- VHF 30 mVpp during sync., tip time slots (75  $\Omega$  unbalanced, BNC connector).
- V trigger 4 Vpp (10k $\Omega$ ), banana socket.
- H Trigger 4 Vpp (10k $\Omega$ ), banana socket.

### CHROMA CODING SELECTOR (applicable to colour bar, white, red, green and blue)

- PAL OFF: selector for phase alternative line or NTSC encoded chroma signal ("swinging" burst retained for NTSC encoded chroma).
- U Mod OFF: de-activates B-Y signal modulator ("swinging" burst retained).
- V Mod OFF: de-activates R-Y signal modulator ("swinging" burst retained).
- Burst amplitude: NORMAL — burst amplitude (peak-to-peak) = line sync. pulse amplitude; adjustable from 0% to 200% of NORMAL level.
- PAL/NTSC Burst: burst switchable from "swinging" (PAL) to "non-swinging" (NTSC) operation.

### COLOUR ENCODING (PAL — I, PAL — G):

- Sub-carrier frequency: 4.433619 MHz.  $\pm$  20 Hz (0... 50°C).

- Chroma bandwidth: 1 MHz 3 dB).
- Burst width: 2.2  $\mu$ s.
- Burst position: 5.7  $\mu$ s after leading edge of line sync. pulse.
- Burst phase: 180°  $\pm$  45° phase alternating line. Switchable to "non-swinging" operation.
- Burst amplitude: NORMAL — burst amplitude (peak-to-peak) = line sync. pulse amplitude; Adjustable from 0% to 200% of NORMAL level.

### VIDEO MODULATION (AM, NEGATIVE):

- Tuning range 35 to 70 MHz. Fundamental or third harmonic 105 MHz to 210 MHz. Tuning by rear panel laterally mounted thumbwheel.
- Modulation depth: 20% residual carrier at reference white.
- Differential phase distortion  $< 3^\circ$ .

### SOUND MODULATION:

- Spacing of sound carrier from vision carrier: 5.5 MHz  $\pm$  0.1% (6.0 MHz optional).
- Modulation tone: 1 KHz sine wave (distortion  $< 1\%$ ).
- FM sweep  $\pm$  50 KHz.
- Operating modes: Modulated sound carrier. Unmodulated sound carrier. Sound carrier off.
- Ratio of effective vision to sound power: 10:1.

### MECHANICAL DETAILS:

- Dimensions: Over front panel surround:
 

Height	Width	Depth
99 mm (3 $\frac{7}{8}$ ")	252 mm (9 $\frac{7}{8}$ ")	254 mm (10")

 Including front knobs and rear fuse holder:
 

Height	Width	Depth
99 mm (3 $\frac{7}{8}$ ")	252 mm (9 $\frac{7}{8}$ ")	276 mm (10 $\frac{7}{8}$ ")
- Weight: 3 kg. (6.6 lbs.).

### FINISH:

- Front Panel: Matt stoved finish, "milk chocolate brown" with "creamed coffee" lettering.

- Front panel surround: Extrusion anodised with hard wearing dark brown Kalcrol "bronze four".
- Case cover: Deep beige PVC covered marvplate steel sheet. All exposed edges return folded.
- Knobs: Collett fixing black.
- 4 mm socket surrounds: Black.
- Toggle Switches: Bright chrome.
- Mains on/off indication: Red indicator.
- Rear panel: Caustic etched aluminium.

### POWER REQUIREMENTS:

- 115 V/240 V  $\pm$  10% 50-60 Hz 14 VA.

### ACCESSORIES:

Supplied with the instrument are two BNC male connectors, two 4 mm plugs and one manual.

A stoutly constructed carrying case is available for the PG100. Constructed of wood with black simulated leather exterior covering and vinyl interior lining, it is furnished with nickel plated steel corner protectors plus quality handles and fittings. Storage space for leads is included.

The manual supplied with the PG100 series instruments contains the following sections:— General, Technical Specification, Control Functions, Applications, Description of Operation, Circuit diagrams, Adjustment Instructions, Components List.

For details of other accessories available please ask for our Television Instrumentation Price List.

### NOTE:

Properties listed in the above specifications that are expressed in numerical values with tolerances stated are guaranteed by us. Numerical values without tolerances are for information only and indicate the properties of an average instrument.

### STOP PRESS MODEL PG.100E

An extra three position toggle switch is included on the PG.100E front panel which gives CIRCLE — SPOT — OFF positions.

In the OFF position the instrument performs exactly as the PG.100D.

In the CIRCLE position a white circle is superimposed on any selected pattern. The circle has a diameter equal to approximately 75% of the picture height.

In the SPOT position a white spot is superimposed on any selected pattern. This spot has a diameter equal to approximately 75% of the picture height.

The circle facility is an additional aid for fast linearity adjustment.

The spot facility is useful for "on screen" checks on receiver or monitor EHT regulation.

It also facilitates receiver saturation contrast alignment when superimposed on the standard 8 band colour bar pattern.

Designed and Manufactured in Australia by

**ARLUNYA PTY. LTD.**

P.O. BOX 113, BALWYN, VICTORIA 3103, AUSTRALIA

TELEPHONE 836 6533 (AREA CODE 03).

TELEGRAMS OR CABLES, ARLUNYA, MELB., AUSTRALIA



## Arlunya Pocket Size Test Pattern Generator PG11



### Specifications:

#### BASIC TEST PATTERNS:

- Crosshatch: 12 horizontal lines of 1 line (per field) width.  
16 vertical lines of 200 ns width.
- Dots: Located at the intersections of horizontal and vertical lines of the crosshatch pattern.
- Staircase: Vertical bar grey scale with 8 identical steps in ascending order with white at 100% luminance.
- White raster: 100% picture contrast.
- Vertical bars: 6 black and white bars with transitions coincident with those of the crosshatch pattern

#### VIDEO STANDARD:

625 lines, 25 Hz, 2:1 interlace (no equalising pulses, no serration pulses during field sync.).  
Line frequency 15.625 kHz  $\pm$  0.1%.  
Frame frequency 25 Hz (=15.625  $\div$  625)  
Line blanking period 12  $\mu$ s.  
Field blanking period 23 lines + 12  $\mu$ s.  
Line sync. duration 4  $\mu$ s.  
Field sync. duration 2.5 lines.  
Front porch duration 1.8  $\mu$ s.  
Set-up between blanking and black levels: Zero.  
Picture to sync. ratio 100:40.

#### VIDEO MODULATION (AM NEGATIVE):

- Tuning range 35—70 MHz (Third harmonic content may be used for higher channels).
- Modulation depth: 20% Residual carrier at reference white.

#### OUTPUTS:

- VHF 30 mVpp during sync., tip time slots (75  $\Omega$  unbalanced), BNC connector.
- V trigger 4Vpp (10K  $\Omega$ ) banana socket.
- H trigger 4Vpp (10K  $\Omega$ ) banana socket.

#### MECHANICAL DETAILS:

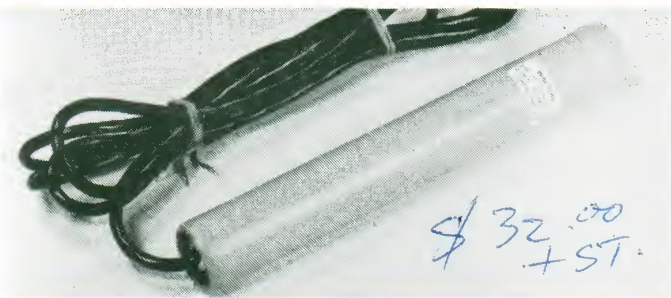
- Height including feet 3.2 cm.
- Depth: 19.3 cm.
- Width: 11.4 cm.
- Weight 507 grams (18 oz.).

#### POWER:

9 volt batter EVEREADY type 2362 or equivalent. Duration: 12 hours continuous operation or much longer in normal intermittent services.

Model PG11V is a video output only version of PG11.

DESIGNED AND MANUFACTURED IN AUSTRALIA BY ARLUNYA PTY. LTD.



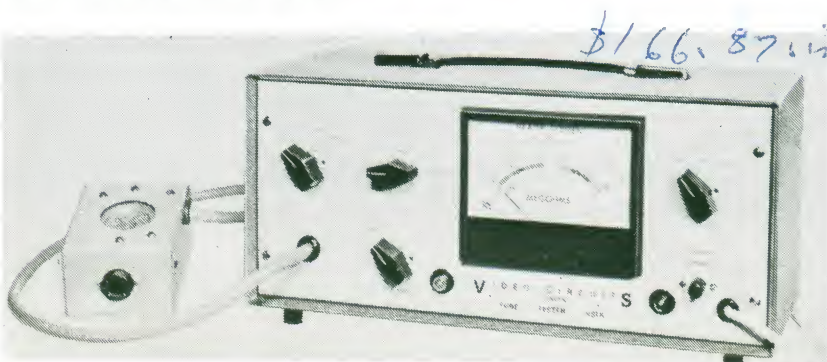
#### DEGAUSSING WAND DGW1.

DGW1 is a self-contained unit designed for workshop service.

It is fitted with a push button switch that must be depressed to operate the wand thus avoiding problems that could arise in the service environment if such a heavy field producing unit were left on.

For 240 V 50 Hz operation under normal workshop non-continuous usage.

#### COLOUR AND MONOCHROME PICTURE TUBE TESTER AND REACTIVATOR V31A



For monochrome and colour tubes; Tests C.R.T.'s in situ; Not necessary to remove E.H.T. cap; Tests red, green and blue guns individually; Measures inter-electrode leakage; Accurately measures beam current; Reactivation process to prolong life.

The V31A Tube Tester is intended for the rapid testing of C.R.T.'s. The heater current is accurately maintained while tests are being made. Inter-electrode leakage is measured with the tube at operating temperature.

The beam current is collected at the first anode, avoiding a difficult connection to the final anode.

Comparisons may be made between the performances of the Red, Green and Blue guns.

#### SPECIFICATION:

Base Box: B8H, B14G bases (B12A optional) 3 pin Trinitron, Japanese 7 pin.

Heater Voltage: 4.0V, 6.3V, 12.6V.

Heater Current: Accurately set with rheostat and 0-1 amp meter.

Leakage: 300V D.C. test voltage between selected electrode and all others.

Emission: Beam current scale indicates tube condition. Reactivate: Facility for extending life of tubes that are not exhausted.

Supply:  $\pm$ 20-240V A.C.

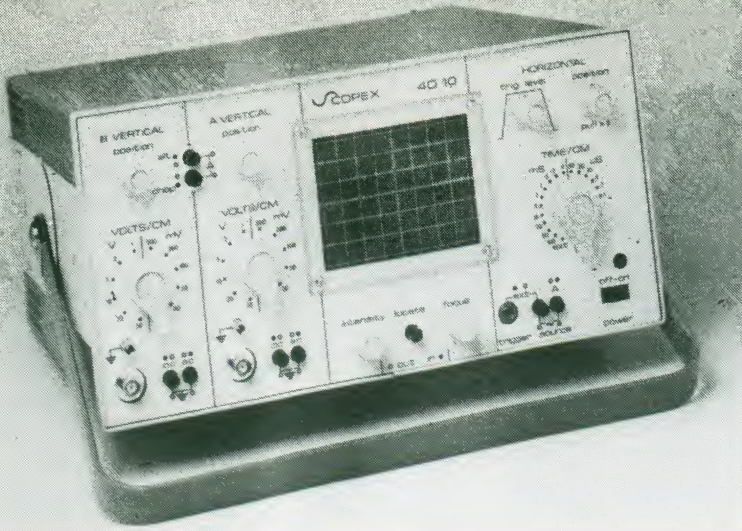
Dimensions: 35 cm side, 15 cm high, 15 cm deep.



# SCOPEX OSCILLOSCOPES

## DUAL TRACE LOW COST MODELS 4D-10 and 4D-25.

- DC to 10 MHz or DC to 25 MHz.
- Design: Advanced circuit design plus the new M.O.S. technology ensures the instrument looks after itself.
- Overload: All input circuits are protected against reasonable overload: ideal for students and trainee use.
- Trigger level and Polarity: Controlled by just one knob. Bright line auto at all sweep speeds, with facility to disable the auto trigger.
- Beam Locate: Circuit measurements often lose the trace — simply push the locate button and the trace re-appears.
- Non-variable Controls: Ensure measurements are constantly and consistently accurate.
- Visibility: The integral handle/stand enables your 4D-10 or 4D-25 to be used in virtually any position. The instrument may be situated either above or below eye-level yet provides clear viewing.
- Vector Scope Operation: External x input permits operation as Vector Scope in conjunction with receiver signals.



VERTICAL DEFLECTION SYSTEM CHANNELS 'A' AND 'B'		4D-25	4D-10
Sensitivity		10 mV/cm-50 V/cm (12 calibrated ranges)	10 mV/cm-50 V/cm (12 calibrated ranges).
Accuracy		± 3%	± 5%.
Bandwidth		DC coupled DC-25 MHz (-3dB). AC coupled 2 Hz-25 MHz (-3dB).	DC coupled DC-10 MHz (-3dB). AC coupled 3Hz-10MHz (-3dB).
Input Impedance		1MΩ ± 2% and 27 pF approx.	1MΩ ± 3% and 33 pF approx.
Rise Time		15 nS approx.	35 nS approx.
Maximum Input Voltage		400 V (DC + Peak AC to 500 kHz).	400 V (DC + Peak AC to 3kHz).
Signal Delay		Permits investigation of leading edge.	
Operating Modes		Channel 'A' only. Alternate between channels. Chopped between channels (approx. 100 kHz)	Channel 'A' only. Alternate between channels. Chopped between channels (approx. 100 kHz)
Input coupling		AC, DC, Ground.	AC, DC Ground.
Trace Locate		Returns overscanned trace to display area irrespective of control settings.	Returns overscanned trace to display area irrespective of control settings.
HORIZONTAL DEFLECTION SYSTEM TIMEBASE			
Sweep Speeds		200 nS/cm-200 mS/cm (19 calibrated ranges)	1μS/cm-100 mS/cm 16 calibrated ranges).
Accuracy		± 3%.	± 5%.
Magnifier		x5 (± 5%) increases fastest range to 40 nS/cm	x 5 (± 5%).
Sweep Output		8V (approx.), negative-going sawtooth, symmetrical about earth.	8V (approx.), negative-going sawtooth, symmetrical about earth.
X AMPLIFIER			
Sensitivity		1V/cm approx. (200 mV/cm on x 5).	1V/cm approx. (200 mVcm on x 5).
Bandwidth		DC-500 kHz.	DC-500 kHz.
Input Impedance		1MΩ and 15 pF approx.	1MΩ and 35pF approx.
Maximum Input		250 V (DC + Peak AC to 500 kHz)	250 V (DC + Peak AC to 1 kHz).
TRIGGER CIRCUIT			
Sources		Channel (A), external, supply frequency.	Channel (A), external, supply frequency.
Sensitivity		Internal 3 mm to 10 Hz-10 MHz, rising to 1 cm at 25 MHz. External 300 mV 10 Hz-10 MHz, rising to 1V at 25 MHz.	Internal 5 mm 10 Hz-1MHz, rising to 3 cm at 5 MHz. External 300 mV 30 Hz to 5MHz, 600 mV 10 Hz to 10 MHz.
Trigger Level and Polarity		Selected on one control. Bright line auto in the absence of trigger signal at all sweep speeds. (Facility to disable auto trigger).	Selected on one control. Bright line auto in the absence of trigger signal at all sweep speeds. (Facility to disable auto trigger).
Input Impedance		1MΩ and 30 pF approx.	150 KΩ and 25 pF approx.
Maximum Input		250 V (DC + Peak AC to 500 kHz).	250 V (DC + Peak AC to 1 kHz).
DISPLAY			
Cathode Ray Tube		4" P.D.A. Mesh operating at 6 kV, P31 phosphor standard. P7 long persistence phosphor also available.	4" P.D.A. Mesh, P31 phosphor standard. P7 long persistence phosphor also available.
Graticule		Ruled 8 cm x 6 cm.	Ruled 8 cm x 6 cm.
GENERAL INFORMATION			
Power Requirements.		210-250 V AC 40-60 Hz 25 VA or 105-125 V AC 40-60 Hz 25 VA.	210-250 V AC 40-60 Hz 25 VA or 105-125 V AC 40-60 Hz 25 VA.
Dimensions		H. 6" (153 mm), W. 12½" (312 mm), D. 17½" (435 mm), excluding handles.W8 kg.	H. 6" (153 mm), W. 12½" (312 mm) D. 13½" (349 mm), excluding handles.W8 kg
Accessories		Protectomuff for 4D-25.	Protectomuff for 4D-10.

Passive probe kit X10 (Type 510298).  
Passive probe kit X1 (Type 510299).  
Probe load assembly X1 (Optional extra for X10 kit).

N.B.: Each Oscilloscope is supplied with one manual.  
All other accessories are available at extra cost.

ARLUNYA also makes studio/CCTV Sync. Pulse Generators, Precision Power Supplies, Laboratory Instruments, Data Systems, etc. Ask for details.

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